

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
WASHINGTON, DC 20555

September 11, 1996

NRC INFORMATION NOTICE 96-51: RESIDUAL CONTAMINATION REMAINING IN
KRYPTON-85 HANDLING SYSTEM AFTER VENTING

Addressees

All material licensees.

Purpose

The U.S. Nuclear Regulatory Commission is issuing this information notice to make licensees aware of a possible contamination problem in krypton-85 (Kr-85) handling systems. It is expected that recipients will review the information for applicability to their facilities, to ensure that this information is considered when decommissioning one of these systems. However, suggestions contained in this information notice are not NRC requirements; therefore, no specific action nor written response is required.

Description of Circumstances

Recently, NRC was informed of several cases where a licensee found residual contamination remaining in some components of Kr-85 handling systems after the standard decommissioning process. Although these incidents only involved Kr-85, the inherent concerns extend to all gas handling systems that subject a radioactive gas to vacuum/pressure cycling.

The current process for cleaning these systems during decommissioning is to flush and vent them until the readings from the exhausted air are below release limits. The readings on the outside of the components of the system are also checked to make sure that they are below acceptable limits.

During cleaning and decommissioning of some of these systems, it has been reported that a varnish-like residue has been found on the inside of some of the system components (i.e., storage tank and the compressors). The residue is probably the result of the oils and dust in the system plating on the inside of the components through the repeated vacuum and pressure cycles. This residue is not removed by the flushing process currently used to clean the systems. It has been reported that several of the commonly used solvents have been tried, but that the residue was not easily removed. The residue can be removed by exposing the internal surfaces of the components and scraping the residue. Residues containing up to 29.6 gigabecquerels (800 millicuries) have been reported. Due to the low levels of gamma radiation emitted by Kr-85 and the robust construction of the air storage tank and other components, the presence of the residue is not detectable by measurements of the outside of the components.

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updated on 9/24/96

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Discussion

There is a concern that systems released as "cleaned" under the current decommissioning procedures may still contain the residue and be released into the scrap stream for later reuse. In particular, there is a concern that the components could be later cut up, exposing the Kr-85 residue or that the storage tank may be reused as a tank or pressurization chamber.

Licensees decommissioning or receiving these systems, or components from these systems, should be aware of the potential for residual contamination, and take action appropriately.

This information notice requires no specific action nor written response. If you have any questions about the information in this notice, please contact the technical contact listed below or the appropriate regional office.

Donald A. Cool, Director
Division of Industrial and
Medical Nuclear Safety
Office of Nuclear Material Safety
and Safeguards

Technical contact: Michele Burgess, NMSS
(301) 415-5868
Email: mlb5@nrc.gov

Attachments:

1. List of Recently Issued NMSS Information Notices
2. List of Recently Issued NRC Information Notices

Attachment filed in jacket

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* see previous concurrences

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LIST OF RECENTLY ISSUED
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Information Notice No.	Subject	Date of Issuance	Issued to
96-47	Recordkeeping, Decommissioning Notifications for Disposals of Radioactive Waste by Land Burial Authorized Under Former 10 CFR 20.304, 20.302, and Current 20.2002	08/19/96	All U.S. Nuclear Regulatory Commission licensees
96-35	Failure of Safety Systems on Self-Shielded Irradiators Because of Inadequate Maintenance and Training	06/11/96	All U.S. Nuclear Regulatory Commission irradiator licensees and vendors
96-33	Erroneous Data from Defective Thermocouple Results in a Fire	05/22/96	All material and fuel cycle licensees that monitor temperature with thermocouples
96-28	Suggested Guidance Relating to Development and Implementation of Corrective Action	05/01/96	All material and fuel cycle licensees
96-21	Safety Concerns Related to the Design of the Door Interlock Circuit on Nucletron High-Dose Rate and Pulsed Dose Rate Remote Afterloading Brachytherapy Devices	04/10/96	All NRC Medical Licensees authorized to use brachytherapy sources in high- and pulsed-dose-rate remote
96-20	Demonstration of Associated Equipment Compliance with 10 CFR 34.20	04/04/96	All industrial radiography licensees and radiography equipment manufacturers
96-18	Compliance With 10 CFR Part 20 for Airborne Thorium	03/25/96	All material licensees authorized to possess and use thorium in unsealed form
96-04	Incident Reporting Requirements for Radiography Licensees	01/10/96	All Radiography Licensees and Manufacturers of Radiography Equipment

LIST OF RECENTLY ISSUED
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
96-50	Problems with Levering-In Devices in Westinghouse Circuit Breakers	09/04/96	All holders of OLs and CPs for nuclear power plants
96-49	Thermally Induced pressurization of of Nuclear Power facility Piping	08/20/96	All holders of OLs or CPs for nuclear power reactors
96-48	Motor-Operated Valve Performance Issues	08/21/96	All holders of OLs or CPs for nuclear power reactors
96-47	Recordkeeping, Decommissioning Notifications for Disposals of Radioactive Waste by Land Burial Authorized Under Former 10 CFR 20.304, 20.302, and Current 20.2002	08/19/96	All U.S. Nuclear Regulatory Commission licensees
96-46	Zinc Plating of Hardened Metal Parts and Removal of Protective Coatings in Refurbished Circuit Breakers	08/12/96	All holders of OLs or CPs for nuclear power reactors
96-45	Potential Common-Mode Post-Accident Failure of Containment Coolers	8/12/96	All holders of OLs or CPs for nuclear power reactors
96-44	Failure of Reactor Trip Breaker from Cracking of Phenolic Material in secondary contact assembly	8/05/96	All holders of OLs or CPs for nuclear power reactors
96-43	Failures of General Electric Magne-Blast Circuit Breakers	08/02/96	All holders of OLs or CPs for nuclear power reactors

OL = Operating License
CP = Construction Permit

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